Well Servicing and Completions Operations—Interim Requirement Regarding the Potential for Explosive Mixtures and Ignition in Wells

July 24, 2007

Effective January 1, 2008, the Alberta Energy and Utilities Board (EUB) has been realigned into two separate regulatory bodies, the Energy Resources Conservation Board (ERCB), which regulates the energy industry, and the Alberta Utilities Commission (AUC), which regulates the utilities industry.

As part of this realignment, the title pages of all existing EUB directives now carry the new ERCB logo. However, no other changes have been made to the directives, and they continue to have references to "EUB." As new editions of the directives are issued, these references will be changed.

ENERGY RESOURCES CONSERVATION BOARD
Directive 033: Well Servicing and Completions Operations—Interim Requirement Regarding the Potential for Explosive Mixtures and Ignition in Wells

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Directive 033

Revised edition July 24, 2007

Well Servicing and Completions Operations—Interim Requirement Regarding the Potential for Explosive Mixtures and Ignition in Wells

The Alberta Energy and Utilities Board (EUB/Board) has approved this directive on July 24, 2007.

[Original signed by]

B. T. McManus, Q.C.
Acting Chairman

1 Interim Requirement

Licensees must recognize the inherent risks associated with well servicing and completions operations where there is potential for explosive mixtures and ignition in wells. Licensees must document and implement the necessary practices to safely manage the potential for explosive mixtures and ignition as part of their overall well control, blowout prevention, and crew training procedures.

The following interim requirement is effective immediately:

Licensees must

- have documented practices available at the well site for the safe management of the potential for explosive mixtures and ignition in wells and associated surface equipment, and
- ensure that all well site staff responsible for well control and blowout prevention understand these practices and know how to apply them.

This interim requirement expands upon existing EUB requirements for well control, blowout prevention, and crew training procedures to include an additional new requirement for addressing the potential for explosive mixtures and ignition in wells.

1.1 What's New in This Edition

Updates in this edition of the directive cite compliance information in *Directive 019: EUB Compliance Assurance—Enforcement*, with references to the matrix of risk items on the EUB Web site where applicable.

2 Compliance Assurance—Enforcement

Commencing April 1, 2006, EUB field representatives conducting well servicing and completions inspections and post-incident investigations will begin assessing compliance with this interim requirement. They will require the documented practices to be produced and

will further interview the appropriate well site staff to verify their knowledge and use of the practices.

Failure to comply with this interim requirement will result in High Risk enforcement action. The EUB's enforcement process is specified in *Directive 019: EUB Compliance—Assurance-Enforcement*. A list of risk-assessed noncompliances is available on the Web at EUB Home : Industry Zone : Compliance and Enforcement : Risk Assessed Noncompliance.

3 Background

This serious safety issue is highlighted by the following recent incident. During a routine completion of an oil well, a blowout and subsequent fire resulted from an explosion within the swab tree assembly located on the top of the well. A review of the incident revealed that an explosive environment was created through a mixture of hydrocarbons and air. The explosion occurred when this mixture ignited, resulting in a failure of the piping and the subsequent well blowout and fire.

The lubricator assembly had not been purged of air, nor was the pressure equalized with the tubing string prior to opening a valve on the assembly. When the valve was opened, the explosion occurred. This explosion resulted in extremely high localized internal pressures, causing failure of a flow tee and associated pipe fittings that were part of the swab tree assembly. The failure caused a fire and uncontrolled flow of sour natural gas and oil. The service rig was destroyed. There was one fatality, and two other workers sustained injuries.

The EUB investigated this incident and concluded that new regulatory requirements regarding procedures for work of this nature needed to be developed and incorporated into future revisions of EUB *Directive 037: Service Rig Inspection Manual*. The EUB has previously issued *Safety Bulletins 2003-02 and 2005-02* for similar incidents. These safety bulletins can be viewed on the EUB's Web site at EUB Home : Industry Zone : Rules, Regulations, Requirements : Safety Bulletins.

Industry is presently developing an Industry Recommended Practice (IRP) to address the concern. Licensees should review the draft *IRP Volume 18: Explosive Atmospheres in Vessels, Tanks, and Piping System*, prepared by a Drilling and Completions Committee (DACC) subcommittee and available on the Web at www.psc.ca/irp_summary/irpvol_18.htm. The objective of IRP 18 is to develop recommended practices that will help operators and contractors work safely in situations where air and hydrocarbon mixtures are present. Further to this, the DACC IRP 18 subcommittee has launched a Web site at www.firesandexplosions.ca/, which provides information and management strategies regarding fires and explosions in the upstream oil and gas industry.

The EUB is very concerned about the current frequency and unacceptable consequences of such incidents and anticipates adopting and/or citing the final IRP 18 within the revised EUB *Directive 037*. Meanwhile, the EUB is instituting the interim requirement stated in Section 1.

4 Contact

Questions regarding this interim requirement should be directed to the EUB Field Surveillance Branch, Drilling and Servicing Technical Specialist: telephone (780) 460-3809, fax (780) 460-3802.

Questions regarding IRP 18 should be directed to the EUB Well Operations Section: telephone (403) 297-5290, fax (403) 297-2691, or e-mail eub.welloperations@gov.ab.ca.